REMARKS

Note regarding change of correspondence address

Applicant notes that the correspondence address for this patent application has been changed, and requests that further actions in this matter be sent to the new address.

Notes regarding the specification

First, the Examiner requested that Applicant update the status of all copending applications made mention of. Applicant has so updated the status of the copending applications referred to in the current patent application.

Second, the Examiner noted the use of the trademark INTEL in this application, and asked that it be capitalized wherever it appears and be accompanied by generic terminology. However, Applicant has reviewed the patent application filed, and cannot find any references to the use of this or any other trademark. Applicant therefore requests that the Examiner provide the exact page and line numbers where he found such usage of the trademark, and Applicant will correct such usage as requested.

Objections to the drawings

The drawings have been objected to because there is no reference therein to Fig. 1 as referred to in the specification. Rather than provide substitute drawings, Applicant has instead amended the specification to refer to Figs. 1A and 1B instead of to Fig. 1. Therefore, the drawings are now properly referenced in the specification and vice-versa, and Applicant requests that this objection be withdrawn.

Objections to the specification

The specification has been objected to because it does not provide proper antecedent basis for the limitation "generating a range" of transactions/operations in claims 5-7, 9, and 12. The offending limitation has been removed by amendment to claims 5, 7, 9, and 12, and by cancellation of claim 6. Therefore, this objection is now moot, and Applicant requests that the objection be withdrawn.

Claim rejections under 35 USC 102

Claims 1-7 and 11-19 have been rejected under 35 USC 102(b) as being anticipated by Borkenhagen (5,790,843). Applicant submits that as these claims have been amended, they are no longer anticipated by Borkenhagen. There are three claim groups in the claims anticipated by Borkenhagen, each beginning with an independent claim: claims 1-7, claims 11-13, claims 14-15, claims 16-17, and claims 18-19. Further, claim 6 has been cancelled. Applicant specifically discusses claim 1 as representative of all of the independent claims; although some of the terminology is different in claim 1 as compared to the other independent claims, for specific purposes of patentability over the prior art cited by the Examiner only, the independent claims can be grouped together. Therefore, in other words, because claim 1 is not anticipated by Borkenhagen, neither are the other independent claims, and of course neither are the dependent claims that depend from these independent claims.

Claim 1 in particular has thus been amended so that the operation has "a predetermined responsive output as encoded within a transaction lookup table." Claim 1 has also been amended so that some of the identifying information is "output to a comparator and the transaction lookup table," where "output of the comparator and output of the transaction lookup table are input into a multiplexer." An "alternative responsive output" for the operation is selected instead of the predetermined responsive output based upon the selected identifying information resulting in the

"comparator directing the multiplexer to output the alternative responsive output." Applicant submits that none of these additional claim limitations are disclosed in Borkenhagen.

First, Applicant summarizes what is going on in claim 1. The comparator and the transaction lookup table provide output to the multiplexer, with the transaction lookup table providing the predetermined responsive output for the operation to the multiplexer, and the comparator directing the multiplexer to either output the predetermined responsive output, or is specifically the case in claim 1, output instead an alternative responsive output. Thus, the output of the comparator causes the multiplexer to output the alternative responsive output, instead of having the multiplexer output the predetermined responsive output that was input to the multiplexer by the transaction lookup table.

Borkenhagen does not use a comparator, a transaction lookup table, and a multiplexer as is now claimed in claim 1, however, to generate an alternative responsive output. Looking at FIG. 1 of Borkenhagen and its corresponding description in the specification of Borkenhagen, the instruction/operation 20 is attempted to be matched by the instruction matching system 12, which may be considered a comparator. "The instruction 20 is compared with one or more instruction opcodes located in the IMR's 16." (Col. 3, ll. 39-42) If the operation 20 is found in the instruction matching system 12, then the results 22 indicate the execution control system 14 instead provide one of the alternate processing options 26/28, which may be considered an alternative responsive output. "If a match occurred between the instruction 20 and one of the instruction opcodes in the IMR's 16, the execution control system 14 looks to the corresponding ECR 18 for a control code that tells the execution control system 14 how to proceed with the processing of instruction 20." (Col. 3, ll. 47-52) However, if the operation 20 is not found in the instruction matching system 12, then the microprocessor continues with its normal execution of this instruction. "If instruction 20 did not match any of the instruction opcodes located in IMR's 16, the microprocessor will generally continue with its normal execution 24." (Col. 3, ll. 54-57)

So, this is how Borkenhagen is different than the claimed invention. The claimed invention provides identifying information of an operation to both a comparator that has an output provided to a multiplexer and a transaction lookup table that outputs a predetermined responsive output for the operation to the multiplexer as well. Borkenhagen provides identifying information of an operation to a comparator, which is the instruction matching system 12. But Borkenhagen does not provide identifying information of the operation to a transaction lookup table that outputs a predetermined responsive output. The execution control system 14 is not such a transaction lookup table, because it only provides alternative processing options (i.e., alternative responsive outputs) 26/28; the execution control system 14 does not output the normal execution option 24, but rather only *indicates that the microprocessor should continue with its normal execution option 24*.

This is somewhat unclear from FIG. 1 of Borkenhagen, but is clear from its description of FIG. 1. Borkenhagen says that "If instruction 20 did not match any of the instruction opcodes located in IMR's 16, the microprocessor will generally continue with its normal execution 24." (Col. 3, ll. 54-57) Further, "the execution control system 14 is utilized to alter microprocessor control for processing the identified problematic instructions" which are watched for by "the instruction matching system or means 12." (Col. 3, ll. 32-37) Indeed, "Along with each identified problematic instruction inserted into one of the IMR's 16, an associated control code must be loaded into one of the ECR's 18. Thus, the system utilizes one or more IMR/ECR pairs to effectuate the desired result" when dealing with problematic instructions. (Col. 4, ll. 41-45) In other words, what the previous two excerpts of Borkenhagen are saying is that the predetermined responsive output is not encoded into the ECR's 18 for outputting by the execution control system 14 – only the alternative responsive output is, and combined with the fact that the microprocessor continues with its normal execution 24 if a corresponding ECR 18 cannot be located by the execution control system 14, supports Applicant's position that the execution control system 14 does not itself output this normal execution 24 by the microprocessor. Indeed,

the whole point is that the microprocessor plods along doing what it is supposed to be doing, unless a specific instruction is caused by the execution control system 14 to be executed differently. The execution control system 14 does not take over for the microprocessor except when receiving such specific instructions.

Ultimately then, the idea in Borkenhagen is that if there is a match to an operation by the instruction matching system 12 (i.e., the comparator), then the *alternative responsive output* – NOT the *predetermined responsive output* – is provided by the execution control system 14, and the execution control system 14 is never described in Borkenhagen as providing the predetermined responsive output. Therefore, the execution control system 14 is not a transaction lookup table as in the claimed invention, since the transaction lookup table outputs the predetermined responsive output, NOT the alternative responsive output as the execution control system 14 does in Borkenhagen. Furthermore, identifying information of an operation is not input into the execution control system 14 to yield a *predetermined responsive output*. Rather, the results of the *comparator* in Borkenhagen – the instruction matching system 12 – are fed into the execution control system 14 (i.e., the identifying information of an operation itself are not fed into the execution control system 14, but rather the results of the comparator after this information has been compared is fed into the execution control system 14), and the execution control system 14 provides the *alternative responsive output* to be used in Borkenhagen.

Furthermore, Borkenhagen is different than the claimed invention because it does not use a multiplexer to select whether a predetermined responsive output or an alternative responsive output should be utilized for a given operation. As can be appreciated by those of ordinary skill within the art, as well as the Examiner, a multiplexer is a specific type of electronic component. Therefore, the execution control system 14 cannot be considered a multiplexer, since, for one, it is not labeled or described as such in Borkenhagen. Furthermore, the execution control system does not select between a predetermined responsive output and an alternative responsive output for a given operation, but rather selects an alternative responsive output for a given operation – if there

is no alternative responsive output for the given operation, *then* the predetermined responsive output is used. However, this predetermined responsive output is not itself provided by (nor indeed input to) the execution control system 14. Instead, the execution control system 14 just tells the microprocessor that its normal execution 24 should be followed, where the microprocessor knows what this normal execution 24 is, and the execution control system 14 does not.

In summary then, there are two elements in the claimed invention that are not present in Borkenhagen: a transaction lookup table in which the operation is mapped to a predetermined responsive output; and, a multiplexer that selects between this predetermined responsive output and an alternative responsive output, based on the output from a comparator. Furthermore, the manner by which Borkenhagen's components are communicatively connected to each other is different than the claimed invention. In Borkenhagen, the identifying information of the operation goes into the comparator (i.e., the instruction matching system 12). If a match is found, the results of the comparator are used by the execution control system 14 to yield an alternative responsive output, one of the alternate processing options 26/28. If a match is not found, then the microprocessor knows, such as being told by the execution control system 14, that the microprocessor should instead just use its normal execution 24 – i.e., its predetermined responsive output – but the execution control system 14 does not know what that normal execution 24 is.

By comparison, in the claimed invention, the identifying operation goes into both the comparator *and* a transaction lookup table. The transaction lookup table yields a predetermined responsive output that goes into a multiplexer, where an alternative responsive output also goes into the multiplexer. The results of the comparator further go into the multiplexer, to direct the multiplexer to output either the predetermined responsive output or the alternative responsive output. Therefore, the claimed invention is not anticipated by Borkenhagen, because it has components that Borkenhagen does not have, and performs its functionality in a different input/output communicative coupling than does Borkenhagen.

Applicant realizes that the above discussion was quite complex, but adamantly believes that it is the proper interpretation of Borkenhagen vis-à-vis the claimed invention, and vice-versa. Should the Examiner need extra clarification regarding this discussion, he is strongly encouraged to contact Applicant's representative to clear things up.

Claim rejections under 35 USC 103

Claims 8-10 have been rejected under 35 USC 103(a) as being unpatentable over Borkenhagen in view of Malmer (3,889,242). Claim 8 is an independent claim, from which claims 9-10 ultimately depend. Claim 8 has been amended consistent with the amendments made to claim 1. Therefore, Applicant submits that claim 8, and thus claims 9-10 that depend therefrom, are allowable over Borkenhagen in view of Malmer for substantially the same reasons that claim 1 is allowable over Borkenhagen alone.

As has been discussed, the claimed invention is limited to providing an operation/transaction into a comparator. The comparator's output is then input into a multiplexer, into which a predetermined responsive value and an alternative responsive value have also been input. The multiplexer thus uses the output of the comparator to determine whether to select the predetermined responsive value or the alternative responsive value for the operation/transaction.

As has also been discussed, Borkenhagen does not use a multiplexer, and does not input a predetermined responsive value into its selection mechanism (i.e., the execution control system 14) to determine whether to select the predetermined responsive value or the alternative responsive value for the operation/transaction. Therefore, the issue here under 35 USC 103 with respect to claims 8-10 is whether Malmer teaches the utilization of a multiplexer in this way, and whether Borkenhagen can then be combined with Malmer if so.

Applicant submits that Malmer also does not disclose the utilization of a multiplexer that receives as input a predetermined responsive value, an alternative responsive value, and the output

of a comparator to select either the predetermined responsive value or the alternative responsive value. Rather, Malmer discloses a modifier logic table in FIG. 4 that is used to incorporate both stored function data and modification data, such that the output of the table of FIG. 4 is a modifier output. Such a table is not a multiplexer, for one, where as has been discussed, a multiplexer is a specific electronic component that performs its functionality in a particular way. This can end the discussion here, because Malmer simply does not provide one of the elements of the claimed invention that is missing from Borkenhagen.

Furthermore, the modifier logic table does not operate like the multiplexer of the claimed invention does. It appears that Malmer incorporates the predetermined responsive values and the alternative responsive values for all operations/transactions within the table in FIG. 4. The table in FIG. 4 can then be used to determine a particular responsive value or an alternative responsive value for a given operation. That is, there is no way to use the output of a comparator, like that of Borkenhagen, with the table of Malmer to select between an *input* predetermined responsive value and an *input* alternative responsive value – i.e., two values that are currently being input for a given operation/transaction for the particular purpose of selecting between them. The table in Malmer, for instance, does not use the output of anything resembling a comparator, nor is it clear or obvious how it could. Additionally, the predetermined responsive values and the alternative responsive values are apparently encoded within the table; therefore, the table does not have to be "input" with a particular predetermined responsive value for a given operation/transaction and a particular alternative responsive value for the given operation/transaction to select from – the table rather already "knows" these values for all such operation/transactions, because it already has them stored therein.

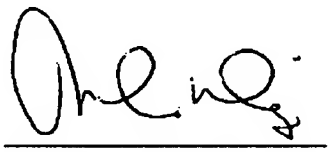
In sum, a multiplexer works by having two or more different values provided to it, such as a predetermined responsive value and an alternative responsive value, and a further input that indicates which of these different values is to be output. A table, like the table in Malmer, simply does not work like a multiplexer and is indeed not a multiplexer. It has all these values already

encoded into it, so nothing (i.e., neither the predetermined responsive value nor the alternative responsive value for a given operation/transaction) needs to be "input" to the table further. Therefore, Malmer does not disclose the elements of the claimed invention missing from Borkenhagen, such that Borkenhagen in view of Malmer does not read on the claimed invention.

Conclusion

Applicants have made a diligent effort to place the pending claims in condition for allowance, and request that they so be allowed. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Applicants' Attorney so that such issues may be resolved as expeditiously as possible. For these reasons, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,



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